Растителна защита
електронно списание за растителна защита
семена, торове и земеделие
ISSN 2815-522X

Plant protection practices during the dormant period of fruit crops

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Дата: 22.12.2014 *Брой:* 12/2014

To ensure the production of healthy fruit produce, care for fruit plantations must continue during the winter months when the plants are dormant. With the onset of the relative dormancy of fruit species, the harmful activity of pests and disease pathogens diminishes, but most of them remain in the plantations - in the soil, on the fallen leaves and fruits. This allows the fight against them to continue during the autumn-winter period.

Agrotechnical and Mechanical Practices

These activities, carried out during the non-vegetative period of fruit trees, are an important element of Good Plant Protection Practice, as their quality implementation reduces the number of

ISSN 2815-522X

vegetative treatments against pests, as well as yields higher quality fruit produce without residual quantities of pesticides. What are they?

1. Pruning dry branches, stunted and dried-out trees, their removal and burning from the fruit plantations, aiming to destroy infections from bark beetles and wood borers, bark beetles, woolly apple aphid, bacterial canker, plum pox virus, fire blight and other pests. After each cut, the cutting tools should be disinfected with a 10% solution of bleach or formalin, or also with denatured alcohol and water in a 3:1 ratio. Immediately after pruning, it is mandatory to seal the cuts with damp paint or white latex, to which a copper-containing fungicide should be added, or to use the ready-made fruit tree paste Tervanol, for better callusing and protection from secondary infections and infestation with diseases and pests.
2. Destruction of caterpillar nests and dried mummified fruits remaining on the trees, and the fallen damaged fruits, which are a source of attack from leaf-eating caterpillars, almond seed wasp and infection from brown rot, dieback of quince shoots, etc.
3. Removal, taking out from the gardens and burning of old and cracked bark from tree trunks to destroy the overwintering forms under it of codling moths, mites, apple leaf mining moth, pear psylla, apple leaf roller and other pests, as well as the pathogens of early brown rot on stone fruits, powdery mildew on apple and peach, fire blight on fruit trees.
4. Whitewashing tree trunks and thick skeletal branches to protect them from frost damage and to destroy lichens and mosses on the stems.
5. Wrapping young trees in packaging paper, corrugated cardboard, polyethylene or other materials to protect them from rodents.
6. Soil cultivation by digging around tree trunks to a depth of 8-10 cm and plowing between the rows to a depth of 18-20 cm. Through this, fallen leaves are plowed under, the mineralization process is activated, and thus the infection from apple and pear scab, white rust on cherry and sour cherry, red leaf spot on plum is reduced. Through soil plowing, part of the pupae of the cherry fruit fly, the false caterpillars of the plum sawfly, the black plum fruit wasp, the cherry weevil, the hairy chafer are destroyed. During soil cultivation, the root system should not be damaged, as this leads to infections with bacterial canker and root rot pathogens. The plowing depth is determined by the age of the plantation and the type of rootstock.
7. Fertilizing fruit trees in autumn provides nutrients to the plants during the period of active root growth and accumulation of reserve substances in the wood, which largely determines their growth and fruiting in the following years. For fruiting fruit species, part of the fertilizers is applied in autumn, and another part - during the spring-summer period. Phosphorus and potassium fertilizers are applied every 3-4 years or annually, with the quantities per 1 decare being 60-80 kg double granulated superphosphate, 30-40 kg potassium sulfate and 3-5 tons of well-rotted manure, which is plowed under to a depth of 35-40 cm.

Nitrogen is usually applied several times a year. After fruit harvest in autumn, surface fertilization with 1/4 to 1/3 of the intended rate (15-20 kg per decare) is recommended, with incorporation to a depth of 15-18 cm or disking to 6-8 cm. These rates are approximate and their quantity depends on the age of the trees, the preceding crop, whether the garden is fertilized every year, whether another crop is planted in the inter-rows, how the plowing, harrowing and disking were performed, whether it is frequently irrigated, etc.